

**SHIFTER FOR TUBULAR BODY**

**Patent number:** JP5211224  
**Publication date:** 1993-08-20  
**Inventor:** TAKAYAMA MICHIO  
**Applicant:** TEXAS INSTR JAPAN LTD  
**Classification:**  
- **International:** H01L21/68; H01L21/22  
- **European:**  
**Application number:** JP19910115624 19910419  
**Priority number(s):**

**Abstract of JP5211224**

**PURPOSE:**To shorten the travel of a tubular body, and to reduce the generation of dust by providing a first support means mounted to a rotary means supporting a first tubular-body housing tool, a third reciprocative support means and a second support means guiding the tubular body to a second tubular-body housing tool when the tubular body is moved. **CONSTITUTION:**A carrier 1, in which a wafer W is housed, is placed onto a carrier base plate 5A, and positioned at a specified position. A motor is driven, a turntable 12 is turned 180 deg.. Consequently, the wafer W, the carrier 1 and the carrier base plate 5A are turned upside down. A boat base plate 31, on which an empty boat 2 is placed, is lifted. The wafer W is guided to the grooves 16a of wafer retainers 16L, 16R and lowered, and a part of the periphery of the wafer is inserted into the groove 2a of the boat 2 and the wafer W is housed into the boat 2. The boat base plate 31 is brought down to an original position, and the boat 2 is also lowered to an original location. The turntable 12 is reversely rotated by 180 deg., and carrier retainer 29 release the carrier 1.

